

Appl. No.: 09/844,947
Amdt. Dated: March 10, 2005
Reply to Office Action of: January 25, 2005

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for producing a fused silica glass containing titania, comprising:
 - synthesizing particles of silica and titania by delivering a mixture of silica precursor and a titania precursor to a burner;
 - growing a column of solid porous preform by successively depositing the particles on a deposition surface at a temperature below a minimum temperature at which the particles can consolidate either partially or fully into dense glass while successively translating the deposition surface away from the burner; and
 - subsequently consolidating the porous preform into dense glass;

wherein said silica precursor and said titania precursor are fed by two separate delivery systems to a manifold where they are mixed prior to being sent to said burner.
2. (previously presented) The method of claim 1, wherein a translation speed of the deposition surface is adjusted to maintain a substantially constant distance between an end portion of the porous preform remote from the deposition surface and the burner during deposition.
3. (previously cancelled)
4. (previously presented) The method of claim 1, wherein consolidating the porous preform into dense glass comprises heating the porous preform to a temperature in a range from 1200 to 1900°C.
5. (original) The method of claim 1, further comprising dehydrating the porous preform by exposing the porous preform to a heated, halide-containing atmosphere prior to consolidation.
6. (original) The method of claim 5, where in the heated, halide-containing atmosphere comprises chlorine.

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7. (original) The method of claim 5, where in the heated, halide-containing atmosphere comprises fluorine.
8. (original) The method of claim 5, wherein the temperature of the heated, halide-containing atmosphere is in a range from 900 to 1100°C.
9. (original) The method of claim 1, wherein the glass contains 2 to 12% by weight titania.
10. - 12 (cancelled)
13. (previously presented) The method of claim 5, wherein a translation speed of the deposition surface is adjusted to maintain a substantially constant distance between an end portion of the porous preform remote from the deposition surface and the burner during deposition.
14. (cancelled)
15. (previously presented) The method of claim 5, wherein consolidating the porous preform into dense glass comprises heating the porous preform to a temperature in a range from 1200 to 1900°C.
16. - 19. (cancelled)
20. (original) The method of claim 1, wherein the minimum temperature is approximately 1200°C.
21. (original) The method of claim 20, wherein the temperature at which the particles are deposited is approximately 200 to 500°C less than the minimum temperature.
22. (cancelled)
23. (original) The method of claim 1, wherein a variation on coefficient of thermal expansion of the dense glass is in a range from -5 ppb/°C to +5 ppb/°C.

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24. (previously presented) The method of claim 1, further comprising rotating the deposition surface relative to the burner while successively depositing the particles on the deposition surface.